

somewhat damaged condition, having a large portion of the parieto-frontal region cut away, and also lacking the nasal and premaxillary bones; it still, however, serves as a basis of comparison between the present species and *N. bubalinus*. The third and fourth milk-molars are still retained, the second premolar is just piercing the gum, and the third molar has its summits slightly abraded by wear. The animal may therefore be considered to have been sub-adult at the time of its death, and may perhaps have not quite attained its full stature.

As it is, the skull is fully as large as that of an aged individual of *N. bubalinus*, but appears to have been of a relatively broader, deeper, and shorter type, although from its imperfection I cannot be sure on all these points. The palate is, however, evidently wider, the interval between the bases of the second molar being about a quarter of an inch more than in the Himalayan species. The basioccipital and basisphenoidal rostrum is also markedly wider and more tapering, with less prominence of the anterior tubercles for muscular attachment, which are, however, much larger.

Perhaps the most important distinctive feature of the skull of the white-maned species is the much greater backward extent of the nasals on to the frontal region, in consequence of which the fronto-nasal suture is situated only a short distance in front of the vertical line formed by the anterior border of the orbit, instead of very considerably in advance of the same. The pit for the face-gland also occupies nearly the whole extent of the lachrymal bone, instead of leaving a large flat surface along the upper border of the same. The palatine bones likewise extend much further forward on the palate, so that the palato-maxillary foramina are situated on the line of the hinder lobe of the first molar instead of opposite the cleft between the two lobes of the second tooth of the same series.

EXPLANATION OF PLATE VIII.

The White-maned Serow (*Nemorhadus argyrochaetes*), from the specimen in the British Museum.

3. The Duke of Bedford's Zoological Exploration in Eastern Asia.—I. List of Mammals obtained by Mr. M. P. Anderson in Japan. By OLDFIELD THOMAS, F.R.S.*

[Received October 9, 1905.]

(Plate IX.†)

As I announced at the last Meeting of the Society, our President, His Grace the Duke of Bedford, K.G., has consented, in order to

* [The complete account of the new species described in this communication appears here; but as the names and preliminary diagnoses were published in the 'Abstract,' such species are distinguished here by the name being underlined.—EDITOR.]

† For explanation of the Plate, see p. 363.

further the cause of zoological exploration, to bear the cost of a collector working systematically through the islands of the Far East, and I now have to give an account of the Mammals obtained by that collector—Mr. Malcolm P. Anderson—in Japan, where he has begun his labours.

The selection of Japan for the first field of Mr. Anderson's work was almost a necessity, for practically nothing has been done with regard to the Mammalogy of that country since the time of Siebold and Burger, whose collections resulted in Temminck's great work of 1842-45, while authentic modern specimens of the species then described were necessary before any further progress could be made. It is true that, by the liberality of the Leyden Museum, typical specimens of most of Temminck's species were distributed to many European museums, our own National Museum receiving a very complete set, but these specimens, 60 to 70 years old, are all naturally much deteriorated by exposure to light, while scarcely any of them have any more exact locality recorded than "Japan."

Under these circumstances no words can express the value of the fine series of specimens obtained by Mr. Anderson, who has proved himself a most successful collector, and one well able to do full justice to the liberality of our President. The specimens, which are of all classes, after being exhibited before the Society, are to be transferred by His Grace to our National Museum, where they will be most gratefully appreciated.

Mr. Anderson landed at Yokohama in July 1904, and began collecting at once in Hondo (Central and North), and made two trips to Hokkaido in September and November.

Later he went to the two large southern islands, Shikoku in March 1905, and Kiushiu in April and May, the specimens from this latter being particularly valuable, as the Dutch Factory, from which the Leyden Museum obtained its materials, was situated at Nagasaki, at the south-eastern corner of the island.

Lastly, Mr. Anderson visited the Oki group of islands, to the north of Southern Hondo, and Tanegashima, south of Kiushiu, while his brother, Mr. Robert Anderson, went to Yakushima, still further south. The specimens from these separate island collections I have included in an Appendix to the paper.

In all, the mammals referred to in the present communication number about 600 examples, belonging to 50 species and sub-species. Of these I have found it necessary to give new names to twelve, besides describing one new Shrew discovered by Mr. Hawker in 1903. The fine new Marten, *Mustela melampus bedfordi*, now figured, but described last session, is also to be credited to Mr. Anderson's collection.

As yet I am chary of making any general conclusions about the mammal-fauna of Japan. It is, however, evident from this collection that there is little faunistic difference between Shikoku, Kiushiu, and the main southern portion of Hondo, but that a number of species do not extend into the north of Hondo, where

such species as occur are sometimes subspecifically different from those of the south. Hokkaido, of course, is very different from Hondo, and the occurrence there of such typically Japanese species as *Micromys speciosus* and *geisha* is somewhat unexpected; possibly they are comparatively recent introductions, even though in each case subspecifically separable from their Hondo relatives.

The following is a list of the species obtained in each of the four islands referred to:—

↳ Hokkaido :

- Sciurus vulgaris orientis.*
Mus norvegicus.
Micromys speciosus ainu, geisha hokkaidi.
Evotomys mikado, bedfordiæ.
Lepus timidus ainu.

↳ Hondo :

- Pipistrellus abramus.*
Sorex shinto, hawkeri.
Crocidura dsi-nezumi chisai.
Chimarrogale platycephala.
Mogera wogura.
Urotrichus talpoides pilirostris.
Canis hodophylax.
Nyctereutes viverrinus.
Mustela melampus bedfordi.
Putorius itatsi.
Petaurista leucogenys.
Sciuropterus momonga amygdali.
Sciurus lis.
Mus tanezumi, molossinus.
Micromys speciosus, geisha.
Microtus montebelli.
Evotomys (Craseomys) andersoni.
 ,, (Phaulomys) smithii.
Lepus brachyurus.
Sus leucomystax.
Nemorhædus crispus.
Cervus sika.

↳ Shikoku :

- Macacus fuscatus.*
Crocidura dsi-nezumi.
Mogera wogura kobæ.
Urotrichus talpoides.
Putorius itatsi.
Meles anakuma.
Micromys speciosus, geisha, minutus japonicus.
Evotomys (Phaulomys) smithii.
Lepus brachyurus.

Kiushiu :

- Rhinolophus ferrum-equinum nippon.*
Myotis macrodactylus, nattereri bombinus.
Miniopterus schreibersi japonie.
Crocidura cerulea, dsi-nezumi.
Urotrichus talpoides.
Mustela melampus.
Putorius itatsi.
Meles anakuma.
Petaurista leucogenys.
Micromys speciosus, geisha, minutus japonicus.
Microtus montebelli.
Erotomys (Phaulomys) smithii.
Lepus brachyurus.

In order to focus so far as possible the existing information about the mammals of Japan, I have prepared the following *résumé* of the literature, which, apart from Temminck's fine work, is of a very fragmentary character.

1824. Siebold, G. T. de. Spicilegia Faun. Japon., in *Dissertatio Hist. Nat. Japon.* p. 13.

Description of "*Myoxus lineatus*"—a *Tamias*, from Hokkaido.

1842-45. Temminck, C. J. *Mammalia* of P. F. de Siebold's 'Fauna Japonica,' pp. 1-60, pls. i.-xxx.

A complete account of the Fauna, as known from the collections sent by Messrs. Siebold, Burger, and other Dutch naturalists to the Leyden Museum.

One of the finest and most complete faunistic works ever published. Up to 1904, that is, for more than sixty years, the only valid species added to those contained in it were *Microtus montebelli* M.-Edw., *Murina hilgendorfi* Peters, and *Talpa mizura* Günth.

The following species are first described in this great work:—*Macacus fuscatus* (under the name of *Inuus speciosus*), *Pteropus dasymallus*, *Rhinolophus nippon* and *cornutus*, *Pterygistes molossus*, *Myotis macrodactylus*, *Pipistrellus abramus* and *akakomuli*, *Talpa wogura*, *Urotrichus talpoides*, *Chimarrogale platycephala*, *Crocidura dsi-nezumi* and *umbrina*, *Meles anakuma*, *Mustela melampus* and *brachyura*, *Putorius itatsi*, *Nyctereutes viverrinus*, *Lepus brachyurus*, *Sciurus lis*, *Pteromys leucogenys*, *Sciuropterus momonga*, *Mus erythronotus*, *argenteus*, *molossinus*, *tanzumi*, and *speciosus*, *Glirulus japonicus*, *Cervus sika*, *Nemorhædus crispus*, and *Sus leucomystax*.

1857. Schlegel, H.

Ursus japonicus, sp. n. *Handl. Beoefening der Dierkunde*, i. p. 42; *Sclater*, P. Z. S. 1862, p. 261; *Günther*, P. Z. S. 1880, p. 442.

The *U. torquatus* of the 'Fauna Japonica.'

1862. Gray, J. E.
Leopardus japonensis, sp. n. P. Z. S. 1862, p. 262, pl. xxxiii.
 Based on a tanned Leopard-skin without exact locality.
1865. Gray, J. E.
Martes japonica, sp. n. P. Z. S. 1865, p. 104; Cat. Carn. B.M. p. 82 (1869).
 No doubt the summer form of *Mustela melampus*.
1867. Gray, J. E.
Lutronectes whiteleyi, g. & sp. nov. P. Z. S. 1867, p. 181; Cat. Carn. B.M. p. 107 (1869).
 Based on young specimens of the Japanese Otter.
1868. Gray, J. E.
Vulpes japonicus, sp. n. P. Z. S. 1868, p. 517; Cat. Carn. B.M. p. 204 (1869).
 "Japan."
1874. Milne-Edwards, A. Recherches Mammifères. Texte, p. 285.
 Description of *Microtus montebelli*, from Fusi-yama.
1875. Von Martens, E. Die Preussische Expedition nach Ost-Asien. Zoologische Abtheilung. I. Pt. 1, pp. 75 & 362.
 General account of Japanese mammal-fauna, and list of species obtained. (Determinations by W. Peters.)
1875. Rein, J. J. Notizen über die Verbreitung einiger Säugthiere auf Nippon. Zool. Gart. xvi, 1875, p. 55.
 Notes on habits, native names, and distribution of thirteen of the better-known species. In the same author's 'Japan,' 1881, i. p. 201, these notes are incorporated in a general popular account of the fauna.
1880. Günther, A. Notes on some Japanese Mammalia. P. Z. S. 1880, p. 440.
 Notes on *Urotrichus talpoides* (with description of *Neurotrichus* g. n. for the American *U. gibbsi*), *Talpa mizura*, sp. n., *Ursus arctos*, *U. japonicus*, and *Calorhinus ursinus*.
 The new Mole, *Talpa mizura*, has not since been obtained. It is closely allied to the European *T. europaea*.
1880. Peters, W. Ueber die von Hrn. Dr. F. Hilgendorf in Japan gesammelten Chiropteren. MB. Ak. Berl. 1880, p. 23.
 Records of 7 species, and description of *Murina hilgendorfi* from Yedo, near Tokyo.
1880. Thomas, O. On the *Myoxus elegans* of Temminck. P. Z. S. 1880, p. 40.
 See below, under *Glirulus japonicus*.

1882. Doederlein, L. Ueber einige Japanische Säugethiere. MT. Deutsch. Ges. Ostasiens, vol. iii. Heft 25, p. 210.
 (1) Existence of Fox in Shikoku. (2) A Changing Hare (" *Lepus variabilis* ") in Japan. (3) On a small musky-smelling rodent (more likely a Shrew).
1886. True, F. W. Description of a new genus and species of Mole (*Dymecodon pilirostris*) from Japan. Pr. U.S. Nat. Mus. 1886, p. 97.
 From Yenoshima, near Tokyo.
 This Mole is probably an immature *Urotrichus talpoides*.
1900. Barrett-Hamilton, G. E. H.
Lepus timidus ainu, subsp. n. P. Z. S. 1900, p. 90.
 From Hokkaido.
1904. Sasaki, C. A new Field-Mouse in Japan. Bull. Coll. Agric. Tokyo, vi. p. 51.
 Description of *Arvicola hatanedzumi* (= *Microtus montebelli*), from Tokyo.
1904. Beard, J. C.
Nyctereutes albus, sp. n. Scientific American, 1904, p. 237.
 Based on a white specimen in the New York Zoological Park, said to be from Hokkaido.
1905. Thomas, O. On some new Japanese Mammals presented to the British Museum by Mr. R. Gordon Smith. Ann. & Mag. N. H. (7) xvi. p. 487.
 Descriptions of *Mogera wogura kobae*, *Petaurista leucogenys nikkonis*, *oreas*, and *tosæ*, *Micromys geisha*, and *Erotomys (Phaulomys, subg. n.) smithii*.
1905. Thomas, O. Exhibition of Mammals from Japan. Abstr. P. Z. S. 1905, p. 9; P. Z. S. 1905, ii. p. 183.
 Description of *Mustela melampus bedfordi*.

1. MACACUS FUSCATUS Bly.

Macacus fuscatus Bly. J. A. S. B. xlv. extra number, p. 6 (1875).
 ♂. 304. ♀. 303, 323. Jinrio, Tokushima Ken, Shikoku. 500'.

This is the *Inuus speciosus* of the 'Fauna Japonica,' nec F. Cuv.
 "Numbers of monkeys live in the forest surrounding certain large temples at a distance from Jinrio. I did not see them, but sent my servant in search of them, and through him secured these specimens. They are considered difficult to hunt, for they hide themselves very effectually in the high Cryptomeria trees. It is said that with the help of a dog they can easily be shot, as the monkey pays little heed to the man and his whole attention is absorbed in exhibiting his anger towards the barking dog. The flesh is commonly eaten by the natives, but on trying it I did not like it."—*M. P. A.*

2. RHINOLOPHUS FERRUM-EQUINUM NIPPON Temm.

♂. 485. Tano, Miyasaki Ken, Kiushiu.

3. PIPISTRELLUS ABRAMUS Temm.

♂. 6. Takayu, near Yonezawa, Uzeu, N. Central Hondo.

Dr. Jentink* has shown that Temminck's *Vespertilio akokomuli* is the same species as his *V. abramus*. The type locality of both is Nagasaki, Kiushiu.

"Caught, with the two succeeding species, in caves near the village."—*M. P. A.*

4. MYOTIS (LEUCONOE) MACRODACTYLUS Temm.

♂. 490, 500. ♀. 493, 494, 515, 516, 517. Tano, Miyasaki Ken, Kiushiu. 500'.

Dimensions of an adult male:—

Forearm 36 mm.

Head and body 44; tail 35; ear 14.5.

These specimens agree absolutely with Temminck's description, and there can be no doubt that they belong to his species, in spite of Peters's assertion † that *macrodactylus* resembled very closely the European *M. capaccinii*, to which these examples bear no resemblance whatever. Indeed, so great is the discrepancy, that I am tempted to suppose that Peters did not really see the specimens described by Temminck at all. *M. macrodactylus* in fact is more closely allied to *M. daubentoni*.

5. MYOTIS NATTERERI BOMBINUS, subsp. n.

♀. 486, 487, 488, 489, 492. Tano, Miyasaki Ken, Kiushiu. 500'.

Similar in essential respects to the European *M. nattereri*, which it evidently represents in Japan. But the ear appears to be rather longer (judging from skins only), the tragus narrower and more boldly curved outwards, the skull is more abruptly and considerably inflated in the frontal region, and the colour is not quite the same.

In true *M. nattereri* the colour is paler and more uniform than in the other small European species of *Myotis*, this being apparently due to the fact that the pale brown ends to the hairs are longer and therefore hide the blackish-grey of their bases. In *bombinus*, however, the coloration is more normal, a darker variegated brown, the blackish-grey bases of the hairs showing through. In a similar way below, the light ends to the hairs are shorter and less prominently white.

Dimensions of the type:—

Forearm 40 mm.

Head and body 52; tail 44; ear 17.

* Notes Leyd. Mus. ii. p. 37 (1879).

† MB. Ak. Berl. 1866, p. 681. Dobson, on this statement, actually synonymised *macrodactylus* with *capaccinii*.

Skull—greatest length 15·5; basal length in middle line 11·8; front of canine to back of m^3 5·9.

Type. Old female. B. M. No. 6.1.4.14. Original number 487. Collected 30 April, 1905.

It is a matter of interest to find in the Far East this representative of *M. nattereri*, which has hitherto only been known from Europe. It is probable, also, that Mr. Miller's *M. thysanodes* is the corresponding Bat in the N. American fauna.

6. MINIOPTERUS SCHREIBERSI JAPONIÆ, subsp. n.

♂. 501, 502, 503, 505, 510, 511, 512, 513, 514. ♀. 495, 496, 497, 504, 507, 508, 518, 519, 520, 521. And two in alcohol. Tano, Miyasaki Ken, Kiushiu. Alt. 500 feet.

Size rather large, uniformly larger than in the Liu-Kiu form, *M. fuscus* Bonh.*

Colour of back between "seal-brown" and dark "Prout's brown"; head and nape rather greyer, though the difference is perhaps due rather to the ends of the hairs being more glossy and so catching the light, than to any essential difference in colour. Under surface like the head.

Dimensions of the type:—

Forearm 47 mm. (range from 46 to 48).

Head and body 57; tail 53; ear 12.

Skull—greatest length 16, median basal length 12; front of canine to back of m^3 6·4.

Type. Adult male. B.M. No. 6.1.4.22. Original number 512. Collected 3 May, 1905.

As was to be expected, the Japanese *Miniopterus* is clearly different from the pale European one, nor does any form quite agreeing with it appear to have been described. Bonhote's *M. fuscus* from the Liu-Kiu Is. is similar in colour (or slightly darker), but is uniformly smaller, the forearm rarely reaching 44 mm. Seven additional examples of *fuscus* recently received from Mr. A. Owston confirm the characters derived from the three originally examined by Mr. Bonhote.

The fine series obtained by Mr. Anderson is remarkably uniform both in colour and size.

This Bat is of course the "*Vespertilio blepotis*" of the 'Fauna Japonica'; but that species was primarily described on examples from Java.

7. SOREX SHINTO Thos.

Sorex shinto Thos. Abstr. P. Z. S. No. 23, p. 19, Dec. 5, 1905.

♂. 47. Makado, near Nohechi, Aomori Ken, N. Hondo. Alt. 400 ft.

A small species with a long tail.

Size as in *S. macropygmeus* Miller, though tail much longer. Fur of back slightly over 3 mm. in length. General colour above

* Nov. Zool. ix. p. 626 (1902).

uniform brown (between "seal-brown" and "Prout's brown"), quite similar in tone from head to rump. Sides not presenting a contrasted light area, being scarcely lighter than the back, and passing gradually without line of demarcation into the drab-washed belly. Chin and throat slightly more greyish. Hands and feet glossy brown, the hairs at the tips of the digits silvery. Tail long, nearly as long as the head and body, well-haired throughout, slightly pencilled at tip, blackish brown above, dull whitish below.

Skull conspicuously larger than that of *S. minutus*, but of the same light and delicate build. Upper unicuspid subequal in transverse section, the last one not smaller than the rest or out of series. All the teeth liberally tipped with brown.

Dimensions of the type, measured in the flesh :—

Head and body 50 mm.; tail 49; hind foot 11·5; ear 7.

Skull—greatest length 17·5; basal length 15; breadth of brain-case 8·5; length of upper tooth-series 7·6.

Hab. as above.

Type. Adult male. B.M. No. 6.1.4.30. Original number 47. Collected 28 September, 1904.

This small Shrew belongs to the genus *Sorex*, which had not hitherto been recorded from Japan. It appears to be a member of the *S. minutus* group, but may be readily distinguished by its size and unusually long tail. A second specimen of it is in the Museum collection, obtained by Mr. Alan Owston near Tokyo.

[*SOREX HAWKERI*, sp. n.]

♂. Inukawa, Yedo, Hondo.

Size very small, about as in *S. minutus*. Fur, in summer, about 3 mm. long on the back. General colour of the dorsal area brown, near "Prout's brown" but considerably paler. Sides distinctly different from back, greyish broccoli-brown; belly like sides, but paler. Upper surface of hands and feet pale drab. Tail short, much shorter than head and body, well-haired and pencilled, pale broccoli-brown above, rather lighter below.

Skull crushed in the single specimen, but apparently even smaller than that of *S. minutus*, as indicated by the short tooth-row. Anterior incisor large, not very deeply notched. Five upper unicuspid broad, closely packed, in even slightly decreasing sequence to the penultimate, the fifth again slightly larger than the fourth, in the tooth-row, clearly visible from without. Brown on teeth about as in *S. minutus*.

Dimensions of the type :—

Head and body (measured in skin) 55 mm.; tail (measured in flesh) 30; hind foot 9.

Skull—tip of anterior incisor to that of large premolar 2·8; to back of m² 5·2.

Type. Male. B.M. No. 3.9.10.1. Collected 7 June, 1903, and presented by R. McD. Hawker, Esq.

Although not collected by Mr. Anderson, I take this opportunity to describe a tiny Shrew obtained in Japan by Mr. Hawker. It

has no alliance with any of the European types of Shrews, but would seem to have relatives among some of the short-tailed Arctic American forms, with which it will no doubt prove to be linked by allied species from the East Siberian mainland.]

8. *CROCIDURA CÆRULEA* KEIT.

4 in alcohol. Nagasaki; in houses.

9. *CROCIDURA* (CR.) *DSI-NEZUMI* TEMM.

♂. 263, 275, 293. Jimrio, Tokushima Ken, Shikoku. 500'.

♀. 321. Tanano, Tokushima Ken, Shikoku. 250'.

♂. 420, 423. ♀. 446. Takamori, Kumamoto Ken, Kiushiu. 1850'.

♂. 463. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

Flesh-measurements of an adult male from Shikoku:—Head and body 67 mm.; tail 46; hind foot 13·5; ear 9.

These specimens from the two southern islands are all of a uniform brownish grey, very like the colour of the European *C. russula*, of which this is evidently the Japanese representative. The type locality is presumably Kiushiu.

But the corresponding Shrew found by Mr. Anderson in the north of Hondo is not quite the same, and may be regarded as a different subspecies.

10. *CROCIDURA DSI-NEZUMI CHISAI**, subsp. n.

♂. 51. ♀. 48. Tsunagi, near Morioka, N. Hondo.

♀. 93. Morioka, N. Hondo.

Similar to *dsi-nezumi* in size, but tail rather and hind feet decidedly shorter. General colour much darker, near "seal-brown," but browner and less purple. Under surface "mouse-grey." Tail uniformly dark brown.

Skull rather narrower, less broadly flattened than in *dsi-nezumi*.

Measurements (in mm.) of three specimens in the flesh:—

51. (Type.) Head and body 68; tail 43; hind foot 12.

48. " " 69; " 37; " 11.

93. " " 66; " 38; " 11.

Skull of type—Greatest length 18, basal length 15·4; greatest breadth 8·5; length of upper tooth-series 7·5.

Type. Adult male. B.M. No. 6.1.4.43. Original number 51. Collected 3 October, 1904.

Temminck's "*Sorex umbrinus*" would appear to be similar to this Shrew in colour and size, but is distinguished by its very long tail, 54 mm. in length.

11. *CHIMARROGALE PLATYCEPHALA* TEMM.

♀. 168. Tajima, E. coast of Izu Peninsula, S.E. Hondo.

Flesh measurements:—Head and body 112 mm.; tail 90; hind foot 25·5; ear 9.

* Chisai=small.

12. *MOGERA WOGURA* Temm.

♂. 56. Tsunagi, near Morioka, Iwate Ken, N. Hondo.

Flesh measurements:—Head and body 108 mm.; tail 20; hind foot 16·5.

13. *MOGERA WOGURA KOBELÆ* Thos.

♂. 336. Ochi, Kochi Ken, Shikoku.

Flesh measurements:—Head and body 160 mm.; tail 25; hind foot 21.

No specimens intermediate in size between these large Moles and the true *wogura* have as yet turned up. Possibly the two forms ought to be regarded as specifically distinct.

14. *UROTRICHUS TALPOIDES* Temm.

♂. 397, 398, 406, 429, 444. ♀. 385, 396, 422, 430, 435. Takamori, Kumamoto Ken, Kiushiu. 1800'.

♂. 471, 472, 476. ♀. 447, 473, 474. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

♂. 274, 290. ♀. 288, 289, 310. Jinrio, Tokushima Ken, Shikoku. 500'.

♀. 314. Fukuhara, Tokushima Ken, Shikoku. 750'.

♀. 324. Ikeda, Tokushima Ken, Shikoku.

♂. 339, 357. ♀. 337, 338, 342, 343, 358. Ochi, Kochi Ken, Shikoku. 1300'.

♀. 329. Sakawa, Kochi Ken, Shikoku.

♂. 370, 378, 379, 380. ♀. 371, 377. Kuma, Ehime Ken, Shikoku. 1200'.

Specimens from Kiushiu may be regarded as typical *talpoides*, for that island is the first locality mentioned in Temminck's original account, besides being that which contains Nagasaki, where the factory of the early Dutch traders was situated.

A pair of well-grown Kiushiu specimens measure (in mm.) as follows:—

♀. Head and body 99; tail 34; hind foot 16.

♂. " " 102; " 34; " 16.

The Shikoku specimens appear to be quite similar to those from Kiushiu. A pair measure:—

♂. Head and body 96; tail 32; hind foot 15·5.

♀. " " 95; " 33; " 15·5.

The general colour of the Kiushiu and Shikoku specimens is a brown, between vandyke and seal-brown, much browner than in those from Northern and Central Hondo.

“These animals are undoubtedly partly herbivorous; for examination of many stomachs showed them to be frequently filled with vegetable matter, probably some root. Remains of earthworms are also frequently found. I catch as many specimens in traps baited with wheat or rice as in those baited with flesh. At all times of the year they come frequently above ground, especially in grassy places.

“Not uncommon; usually found in the embankments that bound the terraced paddy-fields. Often accepting bait of rice or wheat. The stomach contents of those examined was largely of a vegetable character, not mixed with earth as when earthworms are the chief food.”—*M. P. A.*

This observation about the food of *Urotrichus* is of remarkable interest, as it is quite opposed to the general rule in the *Talpidae*. I can find no previous statement on the subject, either as regards this genus or its American ally *Neurotrichus*.

15. *UROTRICHUS TALPOIDES PILIROSTRIS* True.

Dymecodon pilirostris True, P. U.S. Nat. Mus. 1886, p. 97 (juv.).

♂. 53, 61, 62, 65, 73, 74, 75. ♀. 55. Tsunagi, near Morioka, Iwate Ken, N. Hondo.

♂. 94, 95. Morioka, Iwate Ken, N. Hondo.

♂. 142, 144, 145, 162. ♀. 143, 152, 161. Nakaomi, near Ohito, Izu, S.E. Hondo. 400'.

These specimens, from Hondo, are all of a “slate-black” (grey no. 2), with a slight tinge of “mouse-grey,” and are without the distinctly brown tone of the typical *talpoides* of Kiushiu and Shikoku. They are also very slightly smaller, with shorter tails and shorter hind feet.

The following are the measurements (in mm.) of a pair from Izu, near the typical locality of “*Dymecodon pilirostris*”—

♂. Head and body 92; tail 30; hind foot 14·5.

♀. “ 90; “ 26; “ 14·5.

A study of Mr. True's description of the genus *Dymecodon* convinced me that his specimen was a young *Urotrichus*, and this suggestion has been confirmed by Mr. Gerrit Miller, who tells me that the type, now in the U.S. National Museum, “is young, with the milk-dentition still in place.”

But Mr. Miller goes on to state that the molars of *pilirostris* are smaller than those of *talpoides*, and that there are other slight cranial differences, although, owing to the youth of the specimen, he cannot express an opinion as to their value. “My surmise would be that *Dymecodon* is the same as *Urotrichus*, but that the species *pilirostris* is quite distinct from the ordinary animal.”

On geographical grounds, however, it appears to me so unlikely that there should be a different species of *Urotrichus* at Yeno-shima, a place in the Bay of Tokyo quite close to Misaki, where we know the ordinary form occurs, and not far from the Izu peninsula, that I do not at present feel justified in giving the Hondo subspecies any other name than *pilirostris*.

16. *CANIS HODOPHYLAX* Temm.

♂. 255. Washikaguchi, Nara Ken, Hondo.

“The Wolf was purchased in the flesh, and I can learn but little about it. It is rare, some say almost extinct. Japanese name ‘Okami’ or ‘Aamainu.’”—*M. P. A.*

17. NYCTEREUTES VIVERRINUS Temm.

♂. 251. Washikaguchi, Nara Ken, Hondo.

“Japanese name ‘Tanuki.’”—*M. P. A.*

18. MUSTELA MELAMPUS Temm.

♀. Takamori, Kumamoto Ken, Kiushiu.

The beautiful golden yellow of this fresh specimen shows a striking contrast to the dark general colour of the Hondo subspecies.

19. MUSTELA MELAMPUS BEDFORDI Thos. (Plate IX.)

Mustela melampus bedfordi Thos. Abstr. P. Z. S. No. 21, p. 10, June 13, 1905; P. Z. S. 1905, ii. p. 183.

♂. 213, 254. ♀. 217, 232. Washikaguchi, Nara Ken, east of Hiogo, Southern Hondo.

This handsome form of the Japanese Marten, the first new mammal obtained by Mr. Anderson, has already been described, and a figure of it is now given to show its striking colour-contrasts. It will no doubt prove to be the form found all over Southern Hondo, the true yellow *melampus* being a native of Kiushiu.

I am informed that the two forms of the Japanese Marten are well known to the furriers, through whose hands many thousands of skins pass every year.

“The Marten may be regarded as common in Nara Ken. Besides the specimens sent, I saw three other individuals which were shown me by peasants. It lives in the more remote parts of the forest, where its burrows are to be found beside rocks or stumps. Native name ‘Teng.’”—*M. P. A.*

20. PUTORIUS ITATSU Temm.

♂. 185, 186. Tsushima, Aichi Ken, Hondo.

♂. 224, 225, 226, 227, 233, 245. Washikaguchi, Nara Ken, Hondo.

♂. 281, 319. ♀. 308. Jinrio, Tokushima Ken, Shikoku. 500’.

♂. 427, 442. ♀. 405. Takamori, Kumamoto Ken, Kiushiu. 1850’.

♂. 466. Kawachi, Miyasaki Ken, Kiushiu. 1500’.

The Japanese Mink is evidently very common in Southern Hondo and Shikoku, as every collector sends a number of specimens. But in Northern Hondo Mr. Anderson does not seem to have met with it. In Hokkaido it is probably replaced by some representative of the *P. ermineus* group.

“These animals infested the houses of the neighbourhood, presumably for the purpose of catching rats. All the specimens secured were trapped near houses.”—*M. P. A.*

21. MELES ANAKUMA Temm.

♂. 312, 313. ♀. 295. Jinrio, Tokushima Ken, Shikoku, 500'.

♂. 403, 404. Takamori, Kumamoto, Kiushiu.

"Not uncommon. The peasants secure them by smoking them out of their holes."—*M. P. A.*

22. PETAURISTA LEUCOGENYS Temm.

♂. 231, 234, 240. ♀. 253. Washikaguchi, Nara Ken, Hondo.

♂. 477. ♀. 479, 480, 481. Mitai, Miyasaki, Kiushiu.

The specimens from Kiushiu are nearly topotypical, but are less similar to the Nagasaki skin which I provisionally took as typical when recently writing on the subject, than to the form from Shikoku which I described as *P. l. tose**. Further material from different localities will be needed before the races of this interesting and variable animal can be satisfactorily understood.

"The large Flying Squirrel is well-known in this region (Washikaguchi), and is probably as plentiful as anywhere in Japan. It is found in the large Cryptomerias and other trees which grow about some of the temples and shrines and are never cut. The specimens were all purchased from peasants, who brought them to me. The people say that this animal possesses great control over its 'flight,' being able to turn almost at right angles while in mid-air. Japanese literary 'Musasabi,' but called 'Bandari' in this locality."—*M. P. A.*

"At Mitai, Kiushiu, they lived in numbers in a grove of Cryptomerias surrounding a temple. On the evening of April 21 they appeared about 7.30, when darkness was coming on. The first I saw alighted noiselessly on a trunk near me and immediately ascended rapidly among the branches. Another I saw 'fly' from near the top of a Cryptomeria, make almost a half-circle past a cluster of trees, and alight some 40 ft. from the ground on another Cryptomeria. The 'flight' is swift, but we had time to notice that the tail is held nearly straight out behind."—*M. P. A.*

23. SCIUROPTERUS MOMONGA AMYGDALI †, subsp. n.

♂. 257, 259. ♀. 258, 260, 261, 262. Washikaguchi, Nara Ken, Southern Central Hondo.

The Flying Squirrel received by the British Museum in 1844 from the agent of the Leyden Museum as representing Temminck's "*Pteromys momonga*" is so much smaller than these examples that there is no doubt that the two should bear different names. But it is probable that both are included in Temminck's description, in which case one or other of them must be selected as typical of his species. I would therefore propose to select the smaller one, of which he figured the skull, even though he himself

* Ann. Mag. N. H. (7) xv, p. 488 (1905).

† Dr. Rein states that the Japanese name for this animal, Momodori, means "peach-bird."

believed that it was "semi-adulte." This course, besides making the figure fix the type, has the advantage of giving at least one of the two forms an exact typical locality, whereas if the name *momonga* were applied to the large form and a new name given to the small one, the typical locality of neither would be definable. We may thus treat the British Museum 1844 specimen as a co-type, as it was one of those on which the description was based and agrees absolutely with the typical figure. This specimen, far from being "semi-adulte," is absolutely full-grown, its teeth showing more evidence of wear than is the case with any of Mr. Anderson's examples.

The new subspecies may be briefly described as similar to true *momonga*, but conspicuously larger and with a much longer tail. The co-type above referred to has a skull measuring 36×20 mm., Temminck's figure is 35.5×21.5 ; while the smallest of the Nara skulls is 41×23.5 . The hind foot of *momonga* is just 30 mm., that of *amygdali* 37-38.

In colour there is probably little difference, but direct comparison is not possible, as the co-type of *momonga* is in the brown summer pelage. The new form, in its winter pelage (January), has its dorsal hairs blackish slaty, washed terminally with isabella, tending sometimes towards buffy. Cheeks and under surface white, the hairs slaty basally. Under side of membranes irregularly washed with pale fawn. Upper surface of hands and feet grizzled black and fawn, a prominent tuft of longer hairs at the end of each hind toe clear isabella. Tail subdued wood-brown, washed above and below with black.

Skull larger and heavier in every way than that of true *momonga*.

Dimensions of the type, measured in the flesh:—

Head and body 166 mm.; tail 139; hind foot 38; ear 25.

Skull—greatest length 42.2; basilar length 31.5; greatest breadth 26; length of nasals 13.6; breadth of brain-case 19; palatilar length 17.7; palatal foramina 4.3; length of upper tooth-series, exclusive of p^3 , 6.8,

Type. Adult male. B.M. No. 6.1.4.122. Original number 257. Killed 27 January, 1905.

It is probable that the smaller form, to which I restrict the name *momonga*, will prove to be an inhabitant of one of the southern islands, while the larger one is no doubt spread widely over Hondo.

"Brought to me by a servant after my departure from Washikaguchi. They were taken near the top of a rather high mountain, in a forest of *Chamaecyparis*. Regarded by the peasants as the young of the Petaurista, and therefore called 'Bandari.'"—*M. P. A.*

24. *SCIURUS VULGARIS ORIENTIS*, subsp. n.

♂. 98, 102. ♀. 103. Aoyama, Hokkaido.

♂. 125, 127, 136. ♀. 126, 128, 131, 132, 133, 138. Noboribetsu, near Moruran, Hokkaido.

♂. 9, 11, 12, 13. ♀. 8, 14, 15, 16, 17, 18, 19, 20. Jozankei, ear Sapporo, Hokkaido.

The Noboribetsu and Aoyama specimens are in the winter, and the Jozankei specimens in the summer pelage.

In Major Barrett-Hamilton's paper* on the subspecies of *Sciurus vulgaris*, those from the Far East, from Korea and Hokkaido, are assigned to *S. v. calotus* Hodgs. †, whose typical locality is the high region of Central Asia. But the valuable series obtained by Mr. Anderson indicates that they are sufficiently different to have a subspecific name of their own. For while the type of *calotus* and other specimens from the Altai are, in winter pelage, a clear deep grey above without rufous suffusion, the whole of the Hokkaido examples are strongly suffused along the head, dorsal area, and base of the tail with a colour between "Mars-brown" and "vinaceous-cinnamon" of Ridgway, though paler than either. Sides clearer and more silvery grey, especially on two patches on each side, behind the shoulders and in front of the hips. Throat, chest, and belly pure sharply defined white, the hairs white to their roots. Ear-tufts, hands, and feet blackish, more or less speckled with fulvous. Tail broadly washed with black, the basal part of the hairs more or less greyish or fulvous.

In summer pelage the ground-colour (apart from melanism) is dull reddish brown, with dark red ears and feet, and perhaps sometimes a more or less red-washed tail. But every specimen is to a certain degree affected with melanism, and the only one that has the body, ears, feet, and proximal half of tail red, also has the terminal half of the latter organ blackish, as the whole of it is in the majority of specimens.

Dimensions of the type, measured in the flesh:—

Head and body 244 mm.; tail 175; hind foot (s. u.) 60; ear 34. Skull—greatest length 54; basilar length 43.

Hab. Hokkaido. Type from Aoyama.

Type. Adult male in winter pelage ‡. B.M. No. 6.1.4.128. Original number 98. Collected 9 November, 1904.

Two specimens from Söul, Korea, presented by Mr. C. W. Campbell, and killed in January 1889, appear to be quite similar to the Hokkaido Squirrel.

This Eastern form of *S. vulgaris* is no doubt most closely related to *S. v. calotus*, but may be distinguished by the rufous suffusion along its dorsal area. This produces, at least in the winter coat, a considerable resemblance to the Scandinavian Squirrel, but from that animal it is readily distinguished by its dark ear-tufts and feet, and by the sharp definition and complete whiteness of the colour of the under surface.

This Squirrel is of course the *Sciurus varius* of the 'Fauna

* P. Z. S. 1899, p. 3.

† *Mustela (?) calotus* Hodgs. Calc. Journ. N. H. ii. p. 221 (1842).

‡ The hands and feet of the type have some of the red of the summer coat still on them, and this specimen is not, as I at first thought, an exception to the rule that the Hokkaido Squirrel has dark feet in the winter pelage.

Japonica,' but that name, first used by Pallas for the Siberian Squirrel, was rendered invalid by its previous use by Kerr, as shown in Major Barrett-Hamilton's paper.

25. *SCIURUS LIS* Temm.

♀. 7. Takayu, near Yonezawa, Uzeu, Northern-Central Hondo, 3000'. 13 August.

♀. 208. Nara, east of Hiogo, Hondo.

♂. 242. ♀. 249, 250. Washikaguchi, Nara Ken, Hondo.

The Uzeu specimen is in the red-footed summer pelage, without ear-tufts; the others are in the grey winter coat. By some curious error, Temminck has described the former pelage as that of winter, and the latter of summer, but even with only undated specimens available, it is difficult to understand how such a mistake could have been made, as the difference in the quality of the fur is very considerable.

Mr. Anderson did not send any true Squirrels from Kinshiu or Shikoku, but he tells me that they do occur there, though rare and local.

Mr. Gordon Smith's collection contains examples of *Sciurus lis* from Shimosa, Misaki, and the Hiogo Hills, all in Southern Hondo.

"These Squirrels were shot in the groves of pine-trees along the tops of ridges above the village. We found them scarce in the neighbourhood, the three secured being the only ones seen. Native name 'Kinezumi.'"—*M. P. A.*

[*GLIRULUS* (g. n.) *JAPONICUS* Schinz.

Myoxus elegans Temm, 1844.

Although not included among Mr. Anderson's captures, the Japanese Dormouse needs a few remarks on its systematic position and nomenclature, which may conveniently be made here.

Firstly in regard to its specific name. Temminck unfortunately gave it a title which was preoccupied (*Graphiurus elegans* Ogilby, 1838*; *Myoxus elegans* Wagn. 1843), and it was therefore renamed first, in 1845, by Schinz, who called it *javanicus*, and then in 1882, on the ground that *javanicus* was invalid owing to its incorrectness, by myself, with the name of *lasiotis*.

But the plea of incorrectness is no longer admitted, and we are therefore forced to take Schinz's name. We may, however, look upon it as a misprint for *japonicus*, and amend it accordingly, for the statement "Habitat in Japonia" clearly shows that Schinz did not suppose it came from Java, and the accidental alteration of two letters only would make the difference. This course has been already taken by Wallace†, and is, I think, the best way out of the difficulty.

With regard to the generic position of this Dormouse, I think it

* References to all the names here mentioned are given in Reuvenus, 'Myoxidæ; p. 66 (1890).

† 'Island Life,' 2nd edition, p. 395 (1892).

cannot be assigned to any of the existing groups and must have a special name of its own. It is no doubt most nearly allied to *Eliomys* (*Dryomys*, subg. n.) *nitidulus** Pall., but may be readily distinguished by the rather more complicated pattern of its teeth, its small bullæ, the absence of the angular foramen in its mandible, and its peculiar and characteristic colour-pattern. These characters are all brought out in Reuven's descriptions and figures, and do not need further reference here.]

26. *MUS NORVEGICUS* Erxl.

♂. 21. Jozankei, Sapporo, Hokkaido.

♀. 96, 97. Shinshinotsu, Sapporo, Hokkaido.

♀. 99. Aoyama, Hokkaido.

"Caught in forest; extremely abundant."

27. *MUS TANEZUMI* Temm.

♀. 42. Makado, near Nohechi, Aomori Ken, N. Hondo. 400'.

♂. 5. Takayu, near Yonezawa, Uzeu, Hondo. 3000'.

This is the Japanese representative of the Chinese *Mus losea* Swinh.

28. *MUS MOLOSSINUS* Temm.

♀. 66. Tsunagi, near Morioka, Iwate Ken, N. Hondo.

♀. 482. Tano, Miyasaki Ken, Kiushin. 500'.

"Contained 6 embryos 17 mm. in length."

No. 66 has all the appearance of a wild-living individual, not that of a house-mouse, and its proportions approximate to those of the European *Mus spicilegus*. Head and body 92 mm.; tail 55; hind foot 15.

29. *MICROMYS SPECIOSUS* Temm.

♂. 28, 30, 33, 34, 36. ♀. 29, 37, 40, 41. Makado, near Nohechi, Aomori Ken, N. Hondo.

♂. 52, 54, 60, 63, 77, 78. ♀. 49, 59, 79, 82, 83. Tsunagi, N. Hondo.

♂. 165, 174, 176, 177. ♀. 172, 173. Tajima, Izu, S.E. Hondo.

♂. 139, 153, 156, 164. ♀. 141, 150, 154, 157. Nakaomi, Izu, S.E. Hondo.

♂. 276, 278, 279, 285, 302. ♀. 264, 265, 266, 272, 277, 280, 284. Jinrio, Tokushima Ken, Shikoku. 500'.

♂. 330. ♀. 331, 332. Sakawa, Kochi Ken, Shikoku.

♂. 334, 335, 344. ♀. 340, 341, 353, 356, 369. Ochi, Kochi Ken, Shikoku. 200'-1000'.

♂. 326, 327. ♀. 328. Ikeda, Tokushima Ken, Shikoku.

♀. 317, 318. Fukuhara, Tokushima Ken, Shikoku. 750'.

* Better known as *dryas* Schr. The peculiarities of this species, which, while essentially an *Eliomys*, shows certain leanings towards *Glis*, demand a special sub-generic name. *Elius* Schulze is not available, being a synonym of *Glis*.

♂. 373, 374. ♀. 375, 376. Kuma, Ehime Ken, Shikoku. 1200'.

♂. 459, 460, 461. ♀. 452. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

♂. 390, 391, 402, 411, 412, 425, 436, 437. ♀. 393, 418, 419, 426, 433. Takamori, Kumamoto Ken, Kiushiu. 1850'.

♂. 483, 498, 499. ♀. 484, 491. Tano, Miyasaki Ken, Kiushiu. 500'.

“Common everywhere.”

Even with this fine series, combined with that sent by Mr. Gordon Smith, I am unable to trace completely the relation of the presence of spines in the fur to season and sex. Many specimens of each sex are spinous, many spineless, and in a general way it is clear that spines are a character of summer, while they are rarely or never present in the winter pelage. Two examples, however, killed in the middle of December have spines, and one from Shikoku, killed in February, so that there are evidently exceptions to the general rule.

Young specimens, before the development of the rufous colour, are always spineless.

The mammary formula in this species is $2-2=8$.

It appears probable that Temminck's *Mus argenteus*, also described in the 'Fauna Japonica,' was based on small spineless specimens of *M. speciosus*.

The following are the dimensions (in mm.) of a pair from the Izu peninsula:—

♂. Head and body 128; tail 112; hind foot 24; ear 16.

♀. " " 115; " 105; " 24; " 15.

30. MICROMYS SPECIOSUS AINU, subsp. n.

♂. 10. Jozankei, near Sapporo, Hokkaido.

♀. 26. Shinshinotsu, near Sapporo, Hokkaido.

♀. 108, 117. Aoyama, Hokkaido.

As in true *speciosus*, but with rather longer feet and longer skull.

General characters as in the *M. speciosus* of Hondo, with the same dark fulvous colour blackened along the dorsal area and the same whitish underside. Fur similarly either spinous or spineless. Hands and feet greyish white. Feet longer and heavier than in true *speciosus*.

Skull rather narrower and more elongate than in true *speciosus*; palatal foramina longer.

Dimensions of the type, measured in the flesh:—

Head and body 118 mm.; tail 107; hind foot 27·5; ear 15.

Skull—greatest length 31; basilar length 25; nasals 12·2; interorbital breadth 4·8; breadth of brain-case 12·8; palatilar length 14·4; diastema 9·5; palatal foramina 5·8; length of upper molar series 4·2.

Hab. Hokkaido. Type from Aoyama.

Type. Female. B.M. No. 6.1.4.219. Original no. 117. Collected 15 November, 1904.

Of the large series of *M. speciosus* from Hondo, enumerated just previously, only one has a hind foot as much as 25.5 mm. in length, the majority of the adults ranging from 23 to 25. And of those from Shikoku and Kiushiu one only has 25.5, and one 26. On the other hand, the four from Hokkaido are all measured as 26 or over, and in addition their skulls are rather more elongate, especially in the muzzle, than those of the more southern form.

Under these circumstances, in view of the general difference between the faunas of Hondo and Hokkaido, I have thought it advisable to give the form from the latter island a special subspecific name, like as it is to its ally in all other respects.

31. MICROMYS GEISHA THOS.

Ann. Mag. N. H. (7) xv. p. 491 (1905).

♂. 32, 35. ♀. 31. Makado, N. Hondo.

♂. 50, 57, 58, 64, 67, 68. ♀. 69, 70, 71, 72. Tsunagi, Iwah Ken, N. Hondo.

♀. 1, 2, 4. Takayu, Uzeu, Hondo.

♂. 166, 169, 178, 179. ♀. 167, 170, 171. Tajima, Izu, S.E. Hondo.

♂. 140, 147, 155. ♀. 148, 149, 158, 163. Nakoma, Izu, S.E. Hondo.

♂. 268, 292, 309. ♀. 273, 299, 300, 301. Jinrio, Tokushima Ken, Shikoku. 500'.

♂. 351, 363, 364, 365, 366. ♀. 352, 354, 362, 368. Ochi, Kochi Ken, Shikoku. 1500'–2100'.

♂. 381. ♀. 372. Kuma, Ehime Ken, Shikoku.

♂. 394, 401, 416. ♀. 409, 410, 417. Takamori, Kumamoto Ken, Kiushiu. 1800'.

♂. 453. ♀. 451, 454. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

Two specimens of this pretty little species were obtained by Mr. H. Pryer in the Yokohama region in 1888, but it was only when Mr. Gordon Smith's collection was being worked out that it was recognised as new. It would appear to be generally distributed over Hondo, Shikoku, and Kiushiu, and is represented in Hokkaido by a short-eared subspecies.

Its mammary formula, as previously stated with doubt, is 2—2 = 8.

The following are the flesh measurements (in mm.) of a pair from the Izu peninsula:—

♂. Head and body 94; tail 99; hind foot 20; ear 14.

♀. " " 94; " 94; " 18; " 14.

32. MICROMYS GEISHA HOKKAIDI, subsp. n.

♂. 100, 110, 111, 112, 118. ♀. 109, 119, 120. Aoyama, Hokkaido.

♂. 122, 123, 124, 130, 134, 137. ♀. 135. Noboribetsu, near Moruran, Hokkaido.

“Common in bamboo-grass.”

Similar to true *M. geisha* in all respects except that the general colour averages slightly paler (nearly as pale as “isabella,” but of a more rufous brown), and the ears are decidedly shorter.

Dimensions of the type, measured in the flesh:—

Head and body 90 mm.; tail 95; hind foot 19; ear 12.5.

Skull—greatest length 23.5; basilar length 18; palatilar length 10; palatal foramina 5; length of upper molar series 3.6.

Hab. Hokkaido; type from Noboribetsu.

Type. Adult male. B.M. No. 6.1.4.269. Original number 123. Collected 21 November, 1904.

The ear-measurement of *M. geisha* was given in the original description as 12.5 mm., but this was taken on a poorly-made skin, and it is evidently below the correct dimensions. For of nine adult Izu examples seven have been measured by Mr. Anderson as 14 mm., and two as 13.5, while of thirteen adult Hokkaido skins two have this measurement 12, two 12.5, eight 13, and one 13.5. Little as this difference sounds in figures it is easily recognisable by eye.

The occurrence in Hokkaido of representatives of *Micromys speciosus* and *geisha* shows that there is a genuine Japanese element in the fauna of that island, mixed with the boreal non-Japanese fauna indicated among others by the occurrence of *Sciurus vulgaris* instead of *lis*, and *Lepus timidus* instead of *brachyurus*.

33. MICROMYS MINUTUS JAPONICUS, subsp. n.

♂. 286. Jinrio, Tokushima Ken, Shikoku. 500'.

♂. 322. Tanano, Tokushima Ken, Shikoku. 250'.

♀. 462. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

General colour above dusky sepia, the rump only rufous, as in the Eastern forms of *minutus*; belly sharply contrasted white, though with slaty bases to the hairs, as in the European races. One old specimen, however, is more or less rufous over the whole of the upper surface; but this would seem to be an exception.

Skull apparently thicker and heavier than in the other races, with an unusually large brain-case and short muzzle, but material is lacking for a satisfactory comparison with the Eastern forms *pygmaeus* and *ussuricus* *. Molars decidedly larger than in *ussuricus*, which has the tooth-row only 2.8 mm. in length.

Dimensions of the type, measured in skin:—

Head and body 66 mm.; tail 61; hind foot 14.5.

Skull—basilar length 13.7; interorbital breadth 3.4; breadth of brain-case 9.3; palatilar length 8; diastema 4.5; palatal foramina 3; length of upper molar series 3.1.

* The type of *ussuricus* has a hind foot 14 mm. in length, not 12 as given in the original description.

Dimensions of one of Mr. Anderson's specimens, measured in the flesh :—

Head and body 59 mm.; tail 55; hind foot 15; ear 7.

Hab. Southern Hondo, and the islands of Shikoku and Kiushiu. Type from Tosa, Kochi Ken, Shikoku.

Type. Adult male. B.M. No. 5.3.3.44. Collected 15 February, 1904, by R. Gordon Smith, Esq.

The occurrence of the Harvest-Mouse in Japan was recorded by Temminck.

34. *MICROTUS MONTEBELLI* M.-Edw.

Arvicola montebelli M.-Edw. Rech. Mamm. p. 285 (1874). (Fusiyama.)

Arvicola hatanedzumi Sasaki, Bull. Tokyo Coll. Agric. vi. p. 51 (1904). (Tokyo.)

♂. 39. ♀. 38, 43, 45, 46. Makado, near Nohechi, Aomori Ken, N. Hondo.

♂. 80, 84, 85, 86. ♀. 81, 87, 88, 89, 90, 91, 92. Morioka, Iwate Ken, N. Hondo.

♂. 151. ♀. 159. Nakaomi, nr. Ohito, Izu, S.E. Hondo.

♀. 464, 467. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

The British Museum owes to the kindness of Prof. Sasaki representative examples of the Vole described by him as *Arvicola hatanedzumi*, and with these Mr. Anderson's specimens entirely agree. But Prof. Sasaki's name is unfortunately antedated by that given by Milne-Edwards in 1874, the type of which latter is in the Paris Museum.

This type was carefully examined by Mr. Gerrit Miller during his recent visit to Europe, and on his later studying in London the specimens of "*hatanedzumi*" from Tokyo, and a series from Misaki sent home by Mr. Gordon Smith, he came to the conclusion that all belonged to one species, a conclusion from which I see no reason to differ.

One (No. 80) of the twenty-three specimens has a supplementary *agrestis*-like lobe on m^2 , but does not differ from the rest in any other respect.

This Vole is evidently rare in Shikoku and Kiushiu, for Mr. Anderson obtained no example of it in the former island and only two in the latter.

35. *EVOTOMYS MIKADO* Thos.

Evotomys mikado Thos. Abstr. P. Z. S. No. 23, p. 19, Dec. 5, 1905.

♂. 121. Noboribetsu, near Moruran, Hokkaido.

♀. 107. Aoyama, Hokkaido. 400'. *Type.*

"Under moss-grown log in forest of alders and birches."

A true *Evotomys* of medium size, similar in general appearance to Danish examples of *E. glareolus*.

Rufous dorsal area covering the whole top of the head and breadth of the back fairly well defined laterally, especially on the

fore-quarters; its colour rather redder than in *E. glareolus*, approaching "hazel" of Ridgway. Sides greyer. Belly washed with pale buff, not sharply defined laterally. Ears bright rufous. Upper surface of hands and feet pale brownish white. Tail of medium length, well-haired and tufted, dark brown above, dull white below, the terminal tuft black above, whitish below.

Skull rather flatter than in *E. glareolus*, with a low weak muzzle and the frontal outline not so convex. Palatal foramina longer. Choanæ broad and low, their structure as usual.

Molars with the same essential pattern as in *E. glareolus*, but they are peculiarly compressed from before backwards, so as to be unusually broad in proportion to their length, this proportion also being shown in the individual cement-spaces, which are broad transversely, short antero-posteriorly, and with their lateral angles (especially the outer above and the inner below) very sharp.

Dimensions of the type, measured in the flesh:—

Head and body 104 mm.; tail 34; hind foot 17; ear 11.5.

Skull—tip of nasals to back of frontals 15.5; nasals 6.7 × 2.9; height of muzzle behind incisors 3.5; interorbital breadth 3.8; palatal length 10.4; diastema 7; palatal foramina 5; length of upper molar series (crowns) 4.7.

Type. Adult female. B.M. No. 6.1.4.296. Original number 107. Collected 13 November, 1904.

The occurrence of a typical *Evotomys* in Hokkaido was quite to be expected from the general character of the fauna of that island.

36. *EVOTOMYS (CRASEOMYS) BEDFORDI* THOS.

Evotomys bedfordi Thos. Abstr. P. Z. S. No. 23, p. 18, Dec. 5, 1905.

♂. 22, 23, 24. ♀. 25, 27. Shinshinotsu, near Sapporo, Hokkaido. Below 100'.

♂. 101, 104, 106, 113, 114, 115, 116. ♀. 105. Aoyama, Hokkaido. 200'.

"On plains covered with tall grass and scattered alders."

"In bamboo-grass."

Size about as in the Scandinavian *E. (C.) rufocanus* Sund. Fur as in that species, long and loose; hairs of back about 10 mm. in length. General colour less contrasted red and grey than in *rufocanus*, the back darker chestnut, more *E. glareolus*-like, and the sides darker and less sharply contrasted grey. Under surface dull greyish washed with buffy. Crown rufous-chestnut, like the back. Ears inconspicuously reddish. Cheeks like sides. Upper surface of hands and feet dull greyish, the fingers whiter. A prominent glandular patch present in the male on each flank in front of the hip, rather further back than in *E. rufocanus*. Tail considerably longer than in *rufocanus*, less thickly haired, the rings of scales not hidden; brown above, dull white below.

Skull apparently very much as in *E. rufocanus*. It may be

noted that in not one of the specimens are the two bridges over the lateral grooves on the posterior palate complete, while they appear to be always complete in true *Evotomys*.

Teeth broad and powerful, their pattern much as in *E. rufocanus*; last segment of m^3 simple, with scarcely any trace of a postero-internal re-entrant angle.

Dimensions of the type, measured in the flesh:—

Head and body 119 mm.; tail 47; hind foot (s. u.) 20; ear 15.

Skull—greatest length 27·8; basilar length 24; zygomatic breadth 16; length of nasals 8; interorbital breadth 3·7; diastema 7·9; palatilar length 13; palatal foramina 5·7; length of upper molar series 6·4; breadth of front lamina of m^2 1·3.

Hab. Hokkaido. Type from Shinshinotsu.

Type. Adult male. B.M. No. 6.1.4.298. Original number 23. Collected 10 September, 1904.

I have named this handsome Vole after Her Grace the Duchess of Bedford, whose interest in zoology is not less than that of her husband.

E. bedfordiæ agrees with the Scandinavian *E. rufocanus*, the type of the subgenus *Craseomys*, in all essential particulars, but may be readily distinguished by its more *glareolus*-like colour, less contrasted back and sides, and longer, less hairy tail.

E. (C.) latastei Allen, from Kamtchatka, is a considerably smaller animal.

An example of this species was obtained by the late Dr. John Anderson in Hokkaido in 1885, and presented by him to the British Museum, but has not hitherto been identified.

37. *EVOTOMYS (CRASEOMYS) ANDERSONI* THOS.

Evotomys andersoni Thos. Abstr. P. Z. S. No. 23, p. 18, Dec. 5, 1905.

♂. 76. Tsunagi, near Morioka, Iwate Ken, N. Hondo. (*Type*.)

♂. 44. Makado, near Nohechi, Aomori Ken, extreme North Hondo.

Very like *E. (Craseomys) bedfordiæ* externally, but with longer tail, and the teeth much less powerful.

General external appearance almost exactly the same as in *E. bedfordiæ*, the fur of the same long loose texture, and the colour similarly dark lined chestnut passing gradually into greyish on the sides, without the marked contrast found in *E. rufocanus*. Under surface rather darker buff than in *E. bedfordiæ*. Feet rather shorter than in the allied species; tail longer, its dark upper less contrasted with its pale lower surface.

Skull of the same general shape as in *E. bedfordiæ*, and with the same long parallel-sided interorbital region, but more lightly built throughout. Palatal foramina shorter. Hinder edge of palate with the bridges over the lateral grooves complete.

Teeth conspicuously lighter and weaker than in *E. bedfordiæ*, the incisors and all the molars much narrower. Pattern in a

general way similar, but the broad bold outlines of *E. bedfordiae* are replaced by a weaker and more rounded pattern, more like that of ordinary *Evotomys*, to which this species shows some approximation. But the teeth are rootless, and with m^2 and m_3 encapsuled as in *Craseomys*. Posterior section of m^3 more complicated than in *bedfordiae*, forming an inturned C, there being three re-entrant angles on each side of this tooth, the last at least half as deep as the two anterior ones. In *E. bedfordiae* and *E. rufocanus* there is scarcely any trace of a third concavity on either side, while the two anterior re-entrant angles are exceedingly deep and bold.

Dimensions of the type, measured in the flesh:—

Head and body 120 mm.; tail 54; hind foot (s. u.) 18.5; ear 13.

Skull—greatest length 26.6; basilar length 22.7; zygomatic breadth 15; length of nasals 7.8; interorbital breadth 3.3; diastema 7; palatilar length 12.2; palatal foramina 5; length of upper molar series 5.1; breadth of front lamina of m^2 0.9.

Hab. Northern Hondo. Type from near Morioka.

Type. Adult male. B.M. No. 6.1.4.307. Original number 76. Collected 10 October, 1904.

The second specimen (No. 44) is younger and therefore more greyish brown in colour, and its teeth are more angular than those of No. 76. But I do not think that there is any doubt as to its belonging to the same species as the type.

I have named this interesting Vole in honour of Mr. Anderson, its discoverer, who has so far carried out the Duke of Bedford's exploration with conspicuous success.

38. EVOTOMYS (PHAULOMYS) SMITHII THOS.

Evotomys (Phaulomys) smithii Thos. Ann. Mag. N. H. (7) xv. p. 493 (1905).

♂. 146. ♀. 160. Nakaomi, nr. Ohito, Izu Peninsula, S.E. Hondo. 400'.

♂. 345, 346, 347, 348, 359, 360. ♀. 333, 349, 350, 361, 362. Ochi, Kochi Ken, Shikoku. 1400'.

♂. 267, 270, 271, 296, 297, 311. ♀. 287, 291, 298. Jimrio, Takushima Ken, Shikoku. 500'.

♂. 382, 383, 384. Kuma, Ehime Ken, Shikoku. 1200'.

♂. 315. ♀. 316. Fukuhara, Tokushima Ken, Shikoku. 750'.

♂. 325. Ikeda, Tokushima Ken, Shikoku.

♀. 320. Yanainidane, Tokushima Ken, Shikoku. 1600'.

♂. 387, 388, 399, 407, 414, 424, 431, 445. ♀. 386, 389, 400, 415, 439, 440, 441. Takamori, Kumamoto Ken, Kiushiu.

♂. 465. ♀. 448, 449, 450, 455, 457, 468, 469, 470. Kawachi, Miyasaki Ken, Kiushiu. 1500'.

♂. 478. Mitai, Miyasaki Ken. 1000'.

This fine series, numbering 53 examples, of the new form of Red-backed Vole discovered by Mr. Gordon Smith, adds considerably to our knowledge of its variation and distribution. It

would seem to be widely spread over Southern Hondo, S. of 35° N., and to be common in both Shikoku and Kiushiu, its distribution thus corresponding with that of so many Japanese animals. There does not appear to be any tangible difference between the specimens from the Izu Peninsula, from the type locality, Kobe, or from the two southern islands, Shikoku and Kiushiu. In each place, however, there seems a good deal of variability, both in colour, which ranges from a light russet-brown to a dark "vandyke-brown," and in tooth-pattern.

In the latter respect the following description applies to the majority of the specimens, the type being among the minority; but there is every gradation between the two.

M³ with the first outer and inner re-entrant angles subequal, the latter being much deeper in the type; second and third spaces partially, and in some cases fully, separated, not continuous as in the type; fourth space not always separated off from the posterior C; head and tail of the C strongly developed, with a deep re-entrant angle between them, as deep as the one before the head, the third internal projecting angle of the tooth; there are, therefore, three subequal internal re-entrant angles, while in the type there are two deep ones only (the second deeper than is shown in my figure and running more directly backwards), the third being represented by a quite inconspicuous concavity. Similarly on the outer side of the tooth the third concavity is usually far more marked than in the type. As a result of these variations in the depths of the re-entrant angles, the whole tooth appears more bilaterally symmetrical than in the figured specimen. Below, the spaces of m, are usually less uniformly coalesced with each other, and the slight antero-internal concavity of the front trefoil is often developed into a well-defined re-entrant angle, so that there are four inner re-entrant angles to the tooth instead of three.

The measurements (in mm.) in the flesh of two Kiushiu adults are as follows:—

♂. Head and body 100; tail 50; hind foot 17·5; ear 11.

♀. " " 103; " 49; " 18·0; " 12.

With regard to the number of the mammæ, there appear to be only 6, two inguinal pairs and a posterior pectoral pair, no trace of an anterior pectoral pair being discoverable. But the examination has only been made on skins, none of them killed in the breeding-season, and must therefore not be looked on as final.

"Lives both in forest and on grassy hill-sides."—*M. P. A.*

39. *LEPUS TIMIDUS* AINU Barr.-Ham.*

♂. 129. Noboribetsu, near Moruran, Hokkaido.

In the white winter pelage.

Dimensions in the flesh:—

Head and body 510 mm.; tail 35; hind foot 142; ear 65.

* P. Z. S. 1900, p. 90.

40. *LEPUS BRACHYURUS* Temm.

♂. 3. Takaya, near Yonezawa, Uzeu, Hondo.

♂. 175. Tajinia, Izu Peninsula, S.E. Hondo.

♂. 180. Ohito, Izu Peninsula. 100'.

♂. 235, 242. ♀. 239, 244. Washikaguchi, Nara Ken, Hondo.

♂. 282, 305. ♀. 283, 306, 307. Jinrio, Tokushima Ken, Shikoku.

♂. 421. ♀. 413. Takamori, Kumamoto Ken, Kiushiu.

Dimensions of an adult female in the flesh:—

Head and body 505 mm.; tail 40; hind foot 135; ear 78.

"Very common; called 'Usangi' by the Japanese."—*M. P. A.*41. *PENTALAGUS FURNESSI* Stone.

♂. 600. Oshima, Okinawa, Liu-Kiu Is.

This specimen of the interesting Liu-Kiu Hare was presented to Mr. Anderson by Mr. Alan Owston, of Yokohama. It agrees with the type in the possession of only five upper cheek-teeth.

Another specimen is now living in the Duke of Bedford's menagerie at Woburn.

42. *SUS LEUCOMYSTAX* Temm.

♀. 252. Washikaguchi, Nara Ken, Hondo.

"The Wild Boar is very common, some 500 being killed yearly in Nara Ken alone. Japanese name 'Inoshishi.'"—*M. P. A.*

43. *NEMORHEDUS CRISPUS* Temm.

♂. 229. ♀. 230. Washikaguchi, Nara Ken, Hondo.

"The Goat-Antelope is exceedingly rare in Nara Ken, and probably everywhere, for this is but the second place where I have heard of its existence. I was told that 5 to 7 are killed yearly in Nara Ken. It inhabits dense forested heights, and when pursued seeks the rockiest and most precipitous places where it can find cover. Japanese name 'Niku.'"—*M. P. A.*

44. *CERVUS SIKA* Temm.

♀. 228. Washikaguchi, Nara Ken, Hondo.

"Common, many hundreds being killed yearly by the natives. Native name 'Shika.'"—*M. P. A.*

APPENDIX.

On Collections from the Islands of Oki, Yakushima, and Tanegashima.

I. OKI ISLANDS.

These islands lie about 50 miles out at sea, north of Matsuye, towards the western end of South-west Hondo. Mr. Anderson says:—"Dogo Island, the largest of the group, is a heavily-wooded,

mountainous island, rising in places to over 2000 feet. Only the broadest valleys are cultivated, and the hill-sides near the sea. The mountains are steep, but not usually rocky. With few exceptions dense forest clothes all the mountain-sides and tops. It consists of oaks, elms ('zelkova'), chestnuts, camelias, pines, firs, and cryptomerias.

"The island is well watered. We had frequent heavy rains during our stay, which was from June 28 to July 12. The prevailing temperature at the little interior hamlet where we stayed was 74° F. at noon. The nights were slightly cooler."

Of the geology Mr. Robert Anderson says: "Dogo seems to be founded on a formation of very old gneiss of sedimentary origin, which is concealed over much of the surface by recent volcanic rocks and local Tertiary deposits."

31 specimens were obtained in Dogo, belonging to the following six species. Several show some slight modification as compared with their Hondo allies.

1. *MOGERA WOGURA* KOBELÉ, Thos.

♂. 586, 587, 596, 602. ♀. 582, 585, 588, 589, 590, 594, 595, 597, 601, 605, 607, 610. Dogo Island. 100'.

These specimens are in no way distinguishable from the large Mole of S.W. Hondo.

Their skulls, without exception, are all within the narrow limits of 38 to 40 mm. in total length.

2. *UROTRICHUS TALPOIDES* Temm.

♂. 591. Dogo Island. 100'.

3. *CROCIDURA DSI-NEZUMI* Temm.

♂. 599. Dogo Island. 100'.

4. *MICROMYS SPECIOSUS NAVIGATOR**, subsp. n.

♂. 583, 592, 593, 603. ♀. 580, 584. Interior of Dogo Island.

General characters as in Japanese *speciosus*, though the colour is a little duller than the average and the feet are more brownish grey, not so distinctly white. Tail markedly shorter than in any specimens from elsewhere.

Skull as in true *speciosus*.

The following are the dimensions (in mm.) of four well-grown specimens:—

♂	.....	Head and body	112;	tail	87;	hind foot	24·5;	ear	16.
♂	.....	"	"	"	120;	"	88;	"	25 ; "
♂	(Type)	"	"	"	104;	"	79;	"	25 ; "
♀	.....	"	"	"	104;	"	87;	"	24·5; "

Skull of type—greatest length 29 mm.; basilar length 23; length of upper molar series 4·2.

* Oki=out in the sea, out in the offing.

Type. Young adult male. B.M. No. 6.1.4.378. Original number 583. Collected 30 June, 1905.

This insular form of the common Japanese Field-Mouse is readily recognisable by its much shorter tail, this organ in true *speciosus* being rarely less than 100 mm. in length.

5. *MICROMYS GEISHA CELATUS*, subsp. n.

♂. 598, 611. ♀. 581, 606. Interior of Dogo Island. 100'.

Average size distinctly smaller than in mainland *geisha*, and the tail proportionally short. Fur fine and close; hairs of back about 6-7 mm. in length. Colour as in true *geisha*.

Dimensions (in mm.) of three specimens, measured in the flesh:—

♂ (Type)	Head and body	80;	tail	80;	hind foot	19;	ear	15.
♂	.....	”	”	77;	”	83;	”	19;
♀	.....	”	”	78;	”	74;	”	19;
								13.

Skull of type—greatest length 24 mm., length of upper molar series 3.6.

Type. Male. B.M. No. 6.1.4.385. Original number 611. Collected 10 July, 1905.

These insular examples of the common *geisha*-mouse are 5-15 mm. less in the head and body measurement, and 5-20 less in the tail, than specimens from the mainland, but are like the latter in all other respects.

6. *LEPUS BRACHYURUS OKIENSIS*, subsp. n.

♂. 609 (*yg.*). ♀. 604, 608 (*yg.*). Dogo Island. 100'.

Size and other essential characters as in true *brachyurus*, but the colour heavily blackened throughout, more or less melanistic. Of the type, the only adult, the general colour above is uniform bistre-brown, the ordinary subterminal buffy rings on the hairs being either absent or much reduced. Central area of face and crown similar to back, as are the cheeks; a lighter line running from the whiskers past the eyes to the ears. Nape brown. Ears with the proectote* deep black, inconspicuously fringed with buffy; metentote blackish proximally, brownish buffy terminally, outer fringe narrow, dull buffy, inconspicuous; metectote brown proximally, the terminal half-inch black. Sides little lighter than back. Interramia dull whitish, reduced in size by the extension of the black chin-patch. Collar deep bistre-brown. Belly dull whitish. Limbs coloured like back, the long hairs of the feet

* Every mammalogist in describing specimens has felt the need for names to characterise the different parts of the ear when folded, as in repose. The anterior third and posterior two-thirds of the outer surface, and the same of the inner, make four areas always distinguished from each other by colour or degree of hairiness, and constantly have to be described. If, therefore, the whole outer surface of the ear be called the ectote, we may call its anterior part the proectote and the posterior the metectote. Similarly the inner surface would be the entote, its anterior part the proentote and the posterior part the metentote. In ordinary specimens, with the ears folded back, it is the proectote and the metentote which are visible and characteristically coloured, while the metectote and proentote are commonly more or less naked and colourless.

smoky blackish. Tail black above, very slightly more greyish below.

Skull as in true *brachyurus*.

Dimensions of the type, measured in the flesh :—

Head and body 506 mm.; tail 54; hind foot 138; ear 78.

Type. Adult female. B.M. No. 6.1.4.389. Original number 604. Collected 7 July, 1905.

This Hare affords an instance of the blackening so often found in insular forms. No doubt it is a kind of melanism, but the indications given by three specimens, even though they differ in degree, that the darkening is not spasmodic or individual, renders it necessary to recognise the animal by a subspecific name*.

II. YAKUSHIMA.

Yakushima was not visited by Mr. Malcolm Anderson, but by his brother, Mr. Robert V. Anderson, who had been helping him in his collecting work in Kiushiu, Shikoku, and the Oki Islands. The following is an extract from the admirable notes on the island he has given me :—

“Yakushima lies some forty miles south of the southernmost headland of Kiushiu, a few miles south-west of Tanegashima, and between 30° 15' and 30° 25' N. lat. It is one of the Osumi group of small islands which are the most northerly of the Liu-Kiu curve. It is extremely mountainous in character, the only approximation to the level being along the coast whence a gentle incline slopes to the steep hills a quarter of a mile to a mile away. The island is seen from the sea as a mass of densely-forested high mountains with straight low coast-line, several ridges that inclose basins culminating centrally in Miyanouradake at an altitude of more than six thousand five hundred feet. The island is circular, with a diameter of about fifteen miles. The sides of the hills usually slope at an angle of forty-five degrees, except here and there where great cliffs of granite make a break in the forest.

“The climate is very wet, and the island abounds in streams and mountain-torrents. Light snow sometimes falls, even in summer, on the highest peaks.

“There are no rabbits or martens in Yakushima, but, according to native reports, weasels are common.”—*R. V. A.*

Although he heard of them from the natives, Mr. Anderson was not able to obtain any specimens of the Yakushima monkey, weasel, or deer; but it fortunately happens that a collection of Mammals has just been acquired by the Museum from Mr. Alan Owston, which contains examples of the first and third, besides a weasel from Tanegashima, and I therefore record them here, so as to complete the list of the Mammals known to exist in the island.

* Mr. Anderson has since written to me expressing his conviction that the Oki Hare is constantly different from that from Hondo.

1. *MACACUS FUSCATUS*, Bly.

♂. Owston Collection. Nos. 1, 3, 4. ♀. 2, 5.

These specimens are dark in colour, but not darker than some of the Shikoku examples.

2. *MOGERA WOGURA KANAI*, subsp. n.

♂. 560, 561, 564, 566, 569, 571, 573, 574. ♀. 562, 563. Miyanoura, Yakushima. Sea-level.

Two specimens in the Owston Collection.

A small insular form, rather larger than the typical *wogura* of Yokohama, far smaller than the large *kobee* of S.W. Hondo, Shikoku, and the Oki Islands. Colour rather dark, tending towards slaty; not so brown as in *kobee*.

Dimensions of the type, measured in the flesh:—

Head and body 138 mm.; tail 14; hind foot 19.

Skull—greatest length 35; basal length 30.3; greatest breadth 16.6; front of upper canine to back of m^3 12.8.

Lengths of six other skulls, all male—36.2, 36.5, 35.1, 34.9, 36.5, 35.4.

Type. Old male. B.M. No. 6.1.4.394. Original number 569. Collected 13 June, 1905.

The recurrence of a small Mole at the south-west corner of the Japanese Islands, separated from the other small one of N.E. Hondo by the large *kobee*, renders it a difficult matter to know how best to name the different forms. But as in my paper describing *kobee* the original *wogura* is allocated to the Yokohama animal, it seems better to maintain that reference in the absence of direct evidence to show that *wogura* was given to the small Mole now described.

The extreme uniformity in the size of the specimens is very noteworthy.

At the instance of Mr. Robert Anderson I have used for this Mole the name of Mr. K. Kanai, a native Japanese helper, to whom he and his brother were much indebted for assistance.

Mr. Anderson states that the Mole is exceedingly common in Yakushima, where the damp climate no doubt produces a plentiful crop of earthworms.

3. *CROCIDURA DSI-NEZUMI UMBRINA* Temm. (?).

♀. 547. Miyanoura. 40'.

“Caught in forest of large trees and bamboo undergrowth.”—*R. V. A.*

This Shrew is rather darker and longer-tailed than the ordinary Japanese *C. dsi-nezumi*, and may represent the form described by Temminck as *Sorex umbrinus*.

4. *MUS MOLOSSINUS* Temm.

♂. Miyanoura, Yakushima. 500'.

5. *MICROMYS SPECIOSUS* Temm.

♂. 556. ♀. 545. Miyanoura, Yakushima. Sea-level to 400'.

These specimens are rather more heavily blackened on the back than average mainland examples.

6. *MICROMYS GEISHA YAKUI*, subsp. n.

♂. 549, 551, 552. ♀. 548, 550. Mountains of Central Yakushima. 3500'.

Size and length of tail about as in typical *geisha*, but the feet unusually long and heavy. Colour rather darker and fur longer (hairs of back 7-8 mm.).

Dimensions (in mm.) of three specimens, taken in the flesh:—

♂	.....	Head and body	88;	tail	101;	hind foot	21	;	ear	15.
♀	(Type)	„	„	86;	„	96;	„	20.5;	„	14.
♀	.....	„	„	84;	„	96;	„	20	;	„ 13.5.

Skull of type—greatest length 25; length of upper molar series 4.

Type. Female. B.M. No. 6.1.4.407. Original number 548. Collected 7 June, 1905.

The long and rather dark fur of the Yakushima *geisha* is probably due to the extreme dampness of the island, where the rain is heavy and continuous.

These Mice were obtained during a trip Mr. Anderson made up to the mountainous centre of the island, part of the way down into the basin which succeeds the highest ridge to be seen from the sea. They appeared to be abundant in the forest.

7. *CERVUS SIKA* Temm.

♂. Owston Coll. No. 1. Yakushima.

III. TANEGASHIMA.

“Tanegashima lies between Yakushima and the mainland of Kiushiu, from which it is distant about 20 miles. It is comparatively flat, the highest ridge attaining about 1200 feet. It is cultivated except on the central hills, which are covered partly with forest, partly with grass.

“Monkeys, weasels, deer, and boars were reported to us by the natives. No hares exist here.”—*M. P. A.*

Mr. Anderson only succeeded in obtaining examples of the two usual species of *Micromys*. A weasel from Tanegashima is in the Owston Collection.

1. *PUTORIUS ITATSI* Temm.

♀. Owston Coll. No. 1. Tanegashima.

2. *MICROMYS SPECIOSUS* Temm.

♂. 522, 524. ♀. 523, 525. Northern Tanegashima. Sea-level.

